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**Notice of Allowability**

Application No.

10/612,642

Examiner

Walter L. Lindsay, Jr.

Applicant(s)

LIU ET AL.

Art Unit

2812

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Election filed 8/30/2004.
2. ☒ The allowed claim(s) is/are 1-8 and 13-16.
3. ☒ The drawings filed on 01 July 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
  1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |  |
|--|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date <u>8/7/2003, 4/5/2003</u> | 7. <input type="checkbox"/> Examiner's Amendment/Comment                               |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material   | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|  | 9. <input type="checkbox"/> Other _____.   |

### **DETAILED ACTION**

This Office Action is in response to an Election filed on 8/30/2004.

Currently, claims 1-30 are pending. Claims 9-12 and 17-30 have been withdrawn from consideration.

#### ***Election/Restrictions***

1. Claims 9-12 and 17-30 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected method, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 8/30/2004.
2. Applicant's election without traverse of claims 1-8 and 13-16 in the reply filed on 8/30/2004 is acknowledged.
3. This application is in condition for allowance except for the presence of claims 9-12 and 17-30 to a method that is non-elected without traverse. Accordingly, claims 9-12 and 17-30 have been cancelled.

#### ***Allowable Subject Matter***

4. Claims 1-8 and 13-16 are allowed.
5. The following is an examiner's statement of reasons for allowance: the prior art, either singly or in combination fails to anticipate or render obvious, the limitations of:  
...selectively forming a protective film on said surface of the substrate;  
laterally etching the substrate beneath a gate dielectric of the gate structure; and  
removing the protective film, as required by claim 1; and  
...laterally etching the substrate beneath a gate dielectric of the gate structure by providing HBr and Cl<sub>2</sub> at a flow ratio HBr:Cl<sub>2</sub> of about 3:1 and 30% by volume of

oxygen (O<sub>2</sub>) in helium (He) at a rate of 6 sccm, applying 700 W to an inductively coupled antenna and 65W of substrate bias power, and maintaining the substrate at 50 degrees Celsius at a chamber pressure of 70 mTorr; and

removing the protective film by providing carbon tetrafluoride (CF<sub>4</sub>) at a flow rate of 50 sccm, applying 500W of power to the inductively coupled antenna, applying 40 W of bias power to the cathode and maintaining a wafer temperature of 50 degrees at a chamber pressure of 4 mtorr, as required by claim 16.

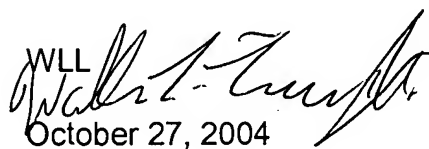
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter L. Lindsay, Jr. whose telephone number is (571) 272-1674. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John F Niebling can be reached on (571) 272-1679. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WLL  
  
October 27, 2004

  
John F. Niebling  
Supervisory Patent Examiner  
Technology Center 2800